

THE DOMINION EXPERIMENTAL FARMS (INCEPTED 1886)

HON. MARTIN BURRELL.
MINISTER OF AGRICULTURE

J.H. GRISDALE, B.AGR.
DIRECTOR

SEASONABLE HINTS

NUMBER 7

MARCH, 1917



In the above outline map, note the locations of the Experimental Farms and Stations. The Superintendent of the Experimental Farm or Station nearest to you will be pleased to give you any information in his power. Why not communicate with him?

SEASONABLE HINTS.

THE DOMINION EXPERIMENTAL FARMS.

Principal Officers.

Director, Dominion Experimental Farms, Ottawa, Ont.
 Dominion Field Husbandman, Experimental Farm, Ottawa, Ont.
 Dominion Chemist, Experimental Farm, Ottawa, Ont.
 Dominion Horticulturist, Experimental Farm, Ottawa, Ont.
 Dominion Cerealists, Experimental Farm, Ottawa, Ont.
 Dominion Botanist, Experimental Farm, Ottawa, Ont.
 Dominion Animal Husbandman, Experimental Farm, Ottawa, Ont.
 Dominion Forage-Crop Specialist, Experimental Farm, Ottawa, Ont.
 Dominion Poultry Husbandman, Experimental Farm, Ottawa, Ont.
 Dominion Tobacco Husbandman, Experimental Farm, Ottawa, Ont.
 Apiarist, Experimental Farm, Ottawa, Ont.
 Chief Officer, Extension and Publicity, Experimental Farm, Ottawa, Ont.
 Supervisor of Illustration Stations, Experimental Farm, Ottawa, Ont.
 Economic Fibre Specialist, Experimental Farm, Ottawa, Ont.

ALBERTA.

Superintendent, Experimental Station, Lacombe, Alta.
 Superintendent, Experimental Station, Lethbridge, Alta.
 Superintendent, Experimental Sub-station, Fort Vermilion, Alta.

BRITISH COLUMBIA.

Superintendent, Experimental Farm, Agassiz, B.C.
 Superintendent, Experimental Station, Invermere, B.C.
 Superintendent, Experimental Station, Sidney, B.C.
 Superintendent, Experimental Station, Summerland, B.C.

MANITOBA.

Superintendent, Experimental Farm, Brandon, Man.
 Superintendent, Experimental Station, Morden, Man.

NEW BRUNSWICK.

Superintendent, Experimental Station, Fredericton, N.B.

NOVA SCOTIA.

Superintendent, Experimental Farm, Nappan, N.S.
 Superintendent, Experimental Station, Kentville, N.S.

ONTARIO.

Central Experimental Farm, Ottawa, Ont.
 Superintendent, Experimental Station, Kapuskasing, Ont.

PRINCE EDWARD ISLAND.

Superintendent, Experimental Station, Charlottetown, P.E.I.

QUEBEC.

Superintendent, Experimental Station, Cap Rouge, Que.
 Superintendent, Experimental Station, Lennoxville, Que.
 Superintendent, Experimental Station, St. Anne de la Pocatière, Que.
 Superintendent, Experimental Station, Spirit Lake, Que.

SASKATCHEWAN.

Superintendent, Experimental Farm, Indian Head, Sask.
 Superintendent, Experimental Station, Rosthern, Sask.
 Superintendent, Experimental Station, Scott, Sask.

Communications should be addressed as above to reach the officers in charge of the work indicated by the official titles.

Seasonable Hints

For March, April, May, June.

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OTTAWA, ONT.

NUMBER 7.

MARCH, 1917.

TO OUR READERS:—

The extraordinarily high prices that have rewarded the efforts of the farmer in 1916 appear likely to continue, not to say improve, for some time yet. The fact that prices are high for all, and not merely for certain, agricultural products is of importance and advantage to us as farmers generally, since there will not be that rush to change lines of effort that would almost certainly have been the case had prices for any particular product or class of products ruled abnormally high as compared with average prices or with prices of certain other products. **We are for this reason, each of us in a position to bend our every effort toward greater production, each along his own line,** and no time or energy is likely to be wasted in trying to learn details of operating along some other, apparently more profitable, line.

The only exception to this is probably the bright future there seems to be for the live stock man. Prices for grains and forage crops are likely to go down shortly after the war ceases, but prices for live stock of most sorts are almost certain to remain high for many years. The beginning of the new crop year is the time for the grain farmer to plan to go into some line of live stock breeding or feeding; it is also the time for the breeder to plan for larger and better herds and flocks of better handled and better fed stock. The generous feeding of our live stock of all kinds at all times is of the greatest importance imaginable and is the only profitable way to handle them. Such methods mean better stock, lower cost of product and greater profits. It involves a little more care in crop planning in the spring and a little more liberality in feeding at all times, but the results in increased products, lower unit costs, and better prices are more than likely to much more than make up for the extra trouble and increased feed bill.

Sincerely yours,

J. H. GRISDALE,

Director, Dominion Experimental Farms.

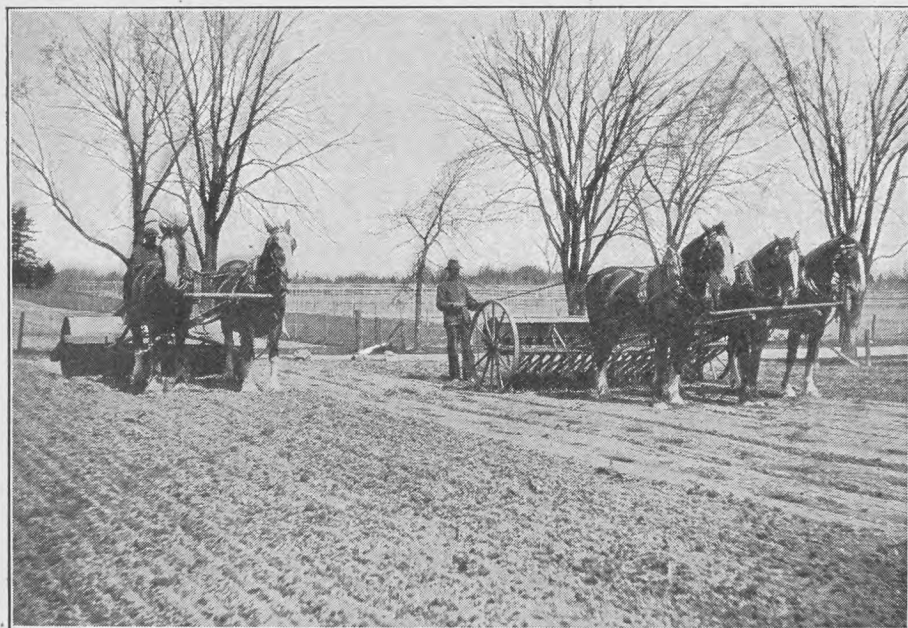
FIELD HUSBANDRY.

CROP ROTATIONS.—Choose a rotation that will be suitable both to the district and to the line of farming followed. A rotation adapted to mixed farming conditions includes hoed crops, cereals, and clover or alfalfa hay. For the prairie provinces, the typical grain farming rotation includes one summer-fallow year in three, while rotations for mixed farming conditions comprise cereals, hoed crops, forage crops and summerfallow years. Full information as to the rotations best suited to your particular district may be obtained on application to the Field Husbandry Division, Central Experimental Farm, Ottawa.

SEED.—Good seed grain is likely to be scarce this season, especially in Eastern Canada, consequently obtain the required seed as early as possible and select it carefully. **Secure the best seed, even if it costs more.** Test all seed for germination in order to be able to estimate the quantities to sow per acre. Clean, grade and bag the seed before the rush of work commences. Purchase the seed corn on the cob; plant only the plump, uniform kernels.

IMPLEMENTS AND MOTIVE POWER.—Have all the implements in good shape before actual seeding operations begin. Order new machines if these are necessary, and lay in a supply of repair parts. Half a day lost during seeding owing to a broken implement may mean a big loss on the crop. If a farm tractor is used in the spring work, give it a thorough overhauling and a few trial trips before seeding commences.

SOIL PREPARATIONS.—Start early and do all seeding operations as thoroughly as possible. A thoroughly prepared seed-bed is uniformly level, fairly fine at the surface, but firm below. Harrow all ploughed land with the least possible delay; the stirring of the soil and the breaking of the crusted surface aid in warming the soil and conserve moisture. After ploughing, the disc harrow is the most suitable implement for preparing the seed-bed. The double cutaway disc harrow, a comparatively recent production, consists of two disc harrows, one in front of the other, cutting, the one with an inthrow, and the other with an outthrow. It ensures a level and thoroughly cut up surface soil, and, while requiring more horse-power to operate than the single disc, the cost of the operation is much reduced.



Single Disc Drill with Roller Preceding it.

SEEDING GRAIN.—Use a modern disc drill; it decreases the loss of seed at seeding time and ensures an even growth and uniform ripening of the crop. Select as large a machine as possible, since large implements aid in reducing the cost of production.

PREPARING LAND FOR CORN.—When spring ploughing for corn, turn a rather flat, shallow score, 3 to 5 inches deep according to soil. Roll and harrow until a friable seed-bed is obtained. Plant the seed as early in May as conditions warrant, not before the soil is sufficiently warm to stimulate vigorous growth. Plant not less than three feet apart each way in hills, and if planted in drills, $3\frac{1}{2}$ feet apart.

USING THE ROLLER.—The roller generally puts the finishing touch on seeding operations, whereas its chief value should be that of a preparatory implement previous to seeding, for firming and crumbling the soil. Where it is required to use the roller immediately after seeding, the harrow should follow to maintain a mulch of the surface soil two or three inches deep. The roller should never be used on seeded land that is damp. The surface should be allowed to dry, when rolling will prove very valuable in breaking the crust and forming a mulch which will retard evaporation of moisture.

PREPARING THE SUMMERFALLOW FOR NEXT YEAR'S CROP.—In the prairie provinces, this is the work which should receive attention after seeding is finished. **Plough in the fore part of June from 7 to 3 inches deep.** Harrow immediately after ploughing or at the same time, but not later than the day following. For the remainder of the season cultivate frequently to maintain a mulch and to destroy weeds and weed seeds.

CLOVER AND ALFALFA HAYING.—**These crops should be cut in time;** allowing either crop to stand after the blossoms appear lessens its palatability and feeding value. Alfalfa is harvested to best advantage when about one-third of the plants are in bloom, or when the shoots appear at the base of the plants. Red clover makes the best quality of feed if cut about the time the heads are in full bloom.

W. L. GRAHAM,
Asst. Dominion Field Husbandman.

FORAGE PLANTS.

USE CANADIAN CLOVER SEED.—Experiments with clovers, conducted by the Experimental Farms' system, have proven conclusively that **the best crops of the said forage plants are realized when Canadian grown seed is used.** Imported seed, especially such from a southern country, is liable to represent varieties which are altogether too tender for the Canadian winter. Such tender varieties may, therefore, winter-kill to a certain degree, sometimes to such an extent that the crop becomes a complete failure.

What the use of imported seed may mean to the farmer, may be illustrated by the following example. Supposing that one acre is seeded down with ten pounds of seed bought at 25 cents a pound and that the winter-killing, on account of the clover being not fully hardy, amounts to 25 per cent. In that case 25 per cent of the seed has been paid for unnecessarily. That is to say, about 60 cents has been wasted per acre. Suppose further, that an acre is capable of yielding two tons of hay when a full stand is secured. How much will it yield if 25 per cent of the stand is winter-killed? Only one ton and a half. With the price of hay on the land, say, \$8 a ton, it means that the land which is capable of producing \$16 worth of hay is only giving \$12 worth, a loss of \$4 per acre on account of too tender seed.

When Canadian grown seed is used the risk of losing part of the crop from winter-killing is very much less than with imported seed.

Under these circumstances we advise, most emphatically, that **Canadian grown clover seed be secured** whenever possible, especially this year when the supply of such is plentiful.

PLANT ROOTS FOR SEED EARLY.—Roots saved for seed production should be set out as early as possible in the spring. Experiments with mangels conducted during the last two years at the Central Experimental Farm indicate that a heavier seed crop is obtained with early planting than when the roots are set out later. Mangels set out the second and third week in May yielded, in 1915 and 1916, from 15 to 20 per cent less seed than mangels planted the last days of April and the first week of May. About the first of May can be recommended as a planting date likely to ensure the highest possible seed yield. A little frost after the roots have been planted does not do any harm.

Early planting not only results in higher yield of seed but also tends to give better quality of seed. The seed from early-planted roots is generally more even and also plumper than seed produced by roots planted late.

We would, therefore, recommend that roots for seed production be set out as soon as the condition of the soil allows planting.

M. O. MALTE,

Dominion Agrostologist.

CEREALS.

VARIETIES OF GRAIN.—It is not wise, as a rule, to purchase any variety which has not yet been recommended by the Experimental Farms or by one of the provincial agricultural colleges. Experimenting is interesting but expensive work, and few farmers can afford it.

CHANGE OF SEED.—The old idea that periodical change of seed was essential has been abandoned by scientific investigators and by the most progressive farmers. If proper methods are followed to keep up the fertility of the soil; if the land is thoroughly cultivated; and if clean plump seed is sown every year, deterioration of the grain will not occur.

PREPARATION OF SEED FOR SOWING.—**One cannot afford to sow weed seeds or badly shrivelled grain.** Except under circumstances where plump grain is unobtainable, the use even of seed only moderately plump should be avoided. Such seed will, however, give fair results in favourable seasons. The fanning mill should be used regularly in order to separate out the plumpest seed for sowing.

If there is any doubt as to the vitality of grain intended for sowing, a germination test should be made either by the farmer himself, or a sample may be sent to one of the seed laboratories of the Dominion Government, where free tests are made.

RUST.—It is not believed that there will be any special danger in sowing grain from fields that were rusted last season, provided reasonably plump seed can be screened out. In some cases this will, of course, be impossible and new seed must then be purchased.

SOURCE FOR SEED.—Towards the end of the winter the Dominion Cerealists always has the names of some farmers and dealers who have seed grain for sale, and he will be glad, as far as possible, to furnish inquirers with information as to the best sources of seed near them.

C. E. SAUNDERS,

Dominion Cerealists.

HORTICULTURE.

PRUNING.—The regular pruning of fruit trees and bushes not only ensures the production of better fruit than if they were left unpruned, but saves heavy pruning in any one year. **The latter part of March or early in April, before it is time to spray, is when the bulk of the pruning should be done.** The two best tools for pruning are the hand shears or secateurs for the small branches, and a good hand saw for the larger ones.

SPRAYING.—Few seasons have shown the advantage of thorough spraying as did that of 1916 when, in some parts of Canada, unsprayed apple trees produced little else but No. 3 fruit, while thoroughly sprayed trees gave a large proportion of No. 1 fruit. Spraying should be begun before the flowers open. In the case of apples, a first spraying is made when the leaves are partly open, a second before the flowers open, a third just after they fall, and, if necessary, from one to three later sprayings. Formulæ will be found in Pamphlet No. 12, Experimental Farms.

SEEDS.—**The importance of having good seed** is often not impressed upon the grower until after he has had a partial or total failure of his crop, either due to a poor strain or to poor germination. The price of the seed is a small matter compared to the value of the crop, and it will well repay any one to get the best strains even though the price seems high. It is sometimes too late to make a second sowing after it has been discovered that the seed which has been sown in the field or garden will not germinate, hence the desirability of testing the germination in the house before it is time to sow outside.

PLANTING.—It is desirable to plant fruit and ornamental trees and shrubs, bush fruits, strawberries, and hardy and other herbaceous plants as soon as the ground is dry enough in the spring, as the results will usually be much better than if planted later. Tests of planting potatoes in different parts of Canada have demonstrated that, in most places, the earlier the planting, after danger of frost is over, the larger the crop will be, although in the more moist parts of Canada, and where the summer is cooler, the advantages of early planting are not so marked. It is important to have seed potatoes of strong vitality.

EARLY CULTIVATION.—Sometimes dry weather sets in soon after the frost is out of the ground in the spring and may develop into a protracted drought. Just at the time when the fruit should be setting, the ground becomes very dry, the result being that the fruit does not set well, there not being enough moisture to supply the needs of the tree. **It is important, therefore, to begin cultivation early** to conserve what moisture is in the soil and one should not delay turning under a cover crop for the sake of the extra vegetable matter, as more harm than good may be done.

W. T. MACOUN,

Dominion Horticulturist.

LIVE STOCK.

FEEDS.—**This is the season of the year to make a thorough preparation of both summer and winter feeds.**

A great deal of time might be saved by preparing the summer feeds now. Hay which is to be cut, grain ground or meals mixed should be done before the heavy summer's work commences. Have you anticipated a shortage of pasture this year? If not arrange to sow an area of soiling crops such as peas and oats which, if not needed for pasture supplement, may be made into hay. It has been found that corn ensilage held over for summer feeding is at least ten per cent more profitable feed than soiling crops and is at the same time more convenient and saves labour. Plan for summer ensilage for 1918.

Take care of the pastures in the early summer. Pastures which are used one week too early in the spring will generally run short at least three weeks earlier than if they had been properly conserved.

The feeds absolutely essential for the most economical winter feeding are cheap, rich, concentrated roughages. The best selection for winter feeding is alfalfa or clover hay, ensilage made from corn, clover, or peas and oats, and roots preferably mangels or turnips. In many sections of Canada native hay, oat hay, pea and oat hay, or oat sheaves may be more profitably grown than alfalfa or clover hay.

For economical feeding grains and meals should always be used as a supplement to the cheap roughages and not as the basis of a ration.

HORSES.—The labour problem on the farm is the greatest factor in increasing production costs. Horse power is cheaper than manual labour. Have you sufficient to conduct your farming operations thoroughly? More horse power is necessary for the use of larger machinery, which in turn does farm work more thoroughly and at a lower cost per acre or per ton of crop. **More horses, heavier horses and horses in better condition all through the working season will lower production cost.** Prepare the horses in the early spring for a hard summer's work by regularly exercising and gradually increasing to heavier work.

Brood mares must be properly exercised, preferably with light work but not where there is danger of straining or falling or being crowded between shafts. Watch the mare carefully at foaling. A clean, thoroughly disinfected, bright cheerful box stall is the best place to foal a mare, unless the weather is warm and a clean comfortable grass paddock is available. Yearlings and foals well fed and free from vermin will make the greatest and most profitable gains on summer pasture, but if the pasture is short, a grain supplement is a most profitable investment. The secret of successful horse rearing is to keep the animals clean, healthy and constantly gaining in size and weight until maturity.

DAIRY CATTLE.—Milch cows are now freshening in large numbers. **This is the time to start weighing the milk and separating from the herd the unprofitable producer.** Why not, with your neighbours, organize a cow testing association and start at once. Co-operation in this way is a most profitable investment for all, and will save many dollars by weeding out the unprofitable cow and may create a co-operative spirit, the foundation of co-operative buying and selling associations and co-operative breeding associations. These are money making organizations.

Have you thought seriously of the bull you are using this year? Use only the best pure-bred available. No calf is worth raising on speculation.

If the dam is not a profitable cow and unless the sire is not only a pure-bred but also a good pure-bred, and from a good profit producing cow, the calf is not worth raising.

BEEF CATTLE.—Choice beef is scarcer than ever and prices are uniformly high; on the other hand, feeds are more costly than in normal years. The only possible means of profitable beef production is to make feeds and labour as valuable as possible. **Low-grade, poor-quality steers make the least gains on feed consumed.** Finish all such stock quickly and do not waste money by holding over for winter finishing. A short finishing period for steers is usually the cheapest. On all expensive lands beef marketed as prime baby-beef or young 2-year-olds will have cost less per pound in feed and labour than older steers. Choice quality, cheap, rich, succulent roughages—such as alfalfa hay, corn ensilage, roots and the like—must be the basis of cheap high-grade beef.

The rearing, feeding and finishing of beef is most important but feeders of good beef breeding are always most profitable. Only the choice beef-bred bull will produce the most economical and highest grade of market beef.

SHEEP.—Almost every Canadian farm should have at least a small flock of sheep. As a side line, more money may be made in sheep husbandry than any other class of stock. If you have not a flock why not start at once?

This is the season of the year when sheep need most care and labour. Reasonable attention in the lambing season will save a heavy mortality. A good shepherd will raise a 125% lamb crop.

Don't forget the spring dipping. Although other work may demand attention, yet this is the one phase of sheep husbandry that should never be neglected.

Shear fairly early, at least before the very warm spring days arrive, and thus save the ewe discomfort and loss in weight. With wool as valuable per pound as butter, the greatest care should be taken to produce the cleanest, best fleece and properly to care for the same after shearing. Co-operative marketing will add from two to eight cents per pound revenue from your wool.

Give the lambs an extra good start on grass. A lamb creep in the corner of the pasture and light grain feeding will usually be found most profitable.

SWINE.—The production of the largest, most thrifty litters at the least cost of feed and labour is the problem of every farmer in handling swine. A convenient pasture or grass paddock for the hogs where there is an abundance of grass, shade and water is usually most profitable. A self-feeder for the young pigs or even for the nursing sow or the thin brood sow will save much labour and feed.

It is essential that the brood sow be fed a well balanced, succulent, nutritious, milk-producing ration while suckling the litter. Dairy by-products, such as skim-milk, buttermilk or whey together with meals such as shorts, ground oats, barley, oil cake and the like, are all highly suitable for the feeding of the sow at this season. These are also splendid feeds for the litter at weaning time. If dairy by-products are not available, Digester Tankage may to some extent supplement these feeds.

BUILDINGS.—**Give the live-stock buildings a thorough spring house-cleaning.** Disinfection of the walls and floors with some cheap disinfectant will prevent the spread of any contagious diseases and will increase the health and vigour of the stock. Barns which were foul and damp during the past winter should be overhauled and a cheap but efficient ventilating system installed. Dark, ill-ventilated barns are harbourers and breeders of tuberculosis, abortion and other diseases, which are annually costing the Canadian farmers many millions of dollars.

For specific information regarding, breeding, feeding, and general care and management of live-stock, apply to your nearest Experimental Farm.

E. S. ARCHIBALD,

Dominion Animal Husbandman.

POULTRY.

March, April, May and June mean more directly to the poultry plant than any other four months of the year. In these the breeders are mated, chicks hatched and to a large extent is determined the number of chicks that live, and, hence, the number of layers for next winter.

MARCH.

Select the breeders. Take only healthy birds. A vigorous cockerel and yearling hens are best. If pullets are used have them well matured. In light breeds, mate one male to 20 females, and in heavier breeds one male to 15 females.

Select for breeding the one-year-old hens that made the best pullet records. Mate them with a cockerel that comes from a high layer. If you have not provided the breeding male, see to it at once. Purchase from a breeder who has high-producing, healthy stock. An extra dollar on the price of a good male is soon made up in the flock.

Feed well. Give plenty of fresh air and exercise. If there is accommodation for brooding the chicks in cold weather, hatch some this month. Set so that the largest hatches come out from the middle to the end of April.

APRIL.

In all general purpose breeds, the majority of the chicks should be hatched this month. Early pullets mean early eggs. Early eggs bring high prices and the pullets that start early in the season usually give the good records. Keep a watch on the breeding pens. **Cull out everything that lacks in vigour.** Have appliances for incubating and brooding overhauled and cleaned in plenty of time. If less than one hundred chicks are required natural methods may be just as good as artificial. If more chicks, or earlier and more uniform chicks are wanted, better try an incubator. Write the Central Experimental Farm for circular on Incubating and Brooding.

MAY.

If sufficient chickens have not been hatched by May, eggs may be set the first of this month and if the chicks are well looked after during the summer they should make fairly good birds in the fall. For the light breeds, May is a good month to hatch.

In brooding artificially, the main points are:—Plenty of heat, from 95 to 100 degrees under the hover and keep it there for several weeks especially if the weather is cool. Good ventilation: fresh air should be allowed in to the brooding chamber, but no draught. Cleanliness! The brooder must be kept clean. Sweep out every day, disinfect once a week. Never put a new brood into a brooder without a thorough cleaning.

In feeding, there are a few simple rules that might be laid down. (1) Don't feed too soon. The first few days, heat and quiet are more important than feed. (2) Don't feed too much. More chicks are killed by over-feeding than under-feeding. Feed a little and often. Have the chicks hungry for the first week or two. (3) Keep things clean. Clean the feed up after each meal. Don't allow feed to be left to spoil. Clean and disinfect the troughs. Judicious feeding and cleanliness mean low mortality and strong chicks.

Ask for Circular No. 13 on the Brooding and Rearing of Chicks.

JUNE.

Give the chicks plenty of range. A vegetable garden makes a fine place and the chicks usually do more good than harm to the garden. Dry grain mixture in a hopper is good feed for the early chickens. The later ones may require a mash extra.

The early cockerels may be ready for marketing as broilers this month. If they are, sell them. The same with green ducks. Keep nothing longer that will bring a good price.

The young turkeys and geese will demand attention as well as the chicks. The geese are not very hard to raise, but it would be well to put a little extra care on the turkeys. Keep them growing well, give them a good range on sweet land, keep the premises clean, and turkeys, as well as all other growing stock, free from lice.

Watch out for crows, skunks, etc., and if there is a sick youngster in the flock anywhere, kill it immediately. **It may infect the whole flock.**

F. C. ELFORD,

Dominion Poultry Husbandman.

BEES.

SPRING MANAGEMENT.—On a warm day soon after the bees have been brought out of the cellar, see that each colony has a laying queen (not producing drones) and sufficient stores to last until the next examination. Combs containing stores may be taken from colonies that have more than they need and given to those that may run short. Queenless colonies should be united to weak ones. Very weak colonies should be united to strong ones. In early spring reduce the size of the entrances of the hives. Protecting the apiary from cold winds is important. Bees wintered out-of-doors should be left in their wintering cases until June.

SUPERING.—Give a super as soon as the bees fill the hive if honey is being gathered. A larger amount of honey is obtainable as extracted honey than in the comb. Moreover, extracted honey production pays better in the majority of cases and requires less care, swarming being more easily controlled.

SUPPLIES.—Be sure to have on hand before the busy season a sufficient supply of spare hives (the 10-frame Langstroth hive is recommended), supers, frames, comb-foundation and honey containers to meet all possible requirements.

SYSTEM in apiary work is important, especially during the active season, when a certain day each week, say Monday, should be chosen for examining the colonies and giving any further super room that may be needed.

Remember your success with the bees depends upon good management, especially during the important months covered by this issue. Read our Bulletin No. 26 (Second Series) **"Bees, and How to Keep Them"**. The successful bee-keeper bears in mind what the bees are likely to be doing in a few weeks' time and prepares them for it to the best advantage.

F. W. L. SLADEN,

Apiarist.

THE TOBACCO DIVISION.

After the small tobacco crop of 1916, it is to be expected that the manufacturers' demand for Canadian tobaccos will be keener and more widespread than heretofore.

This situation offers an excellent inducement for the development of tobacco-growing in all those parts of Canada where the crop can be successfully grown. Tobacco requires a soil well-drained, rather light, deep and rich in humus. The climate should permit of transplanting early in June and frosts should not be feared before Sept. 15. According to conditions, the grower should devote his attention to producing wrapper tobaccos such as the Comstock Spanish or the large-leaved pipe tobaccos like the Connecticuts or the General Grant.

The growing of burley and Virginia Yellow requires a still longer season only met with in certain parts of Ontario, where these two varieties are rapidly growing in popularity. It may be said in passing, however, that the demand for Canadian-grown Virginia is increasing each year so that the area planted to this variety may be increased without fear of over-supply.

Tobacco growers in Quebec should pay special attention to growing those types of tobacco in demand on their available markets.

For wrappers, the best results so far have been obtained from Comstock. During the past few years, careful selection has been carried on in this variety and the type has been fixed. **The Tobacco Division can furnish growers with seed of this variety.** In growing it, the important point is the choice of a suitable soil. The ideal type of soil is represented by what is termed in the Yamaska valley "river-bottom land", although higher or rolling land will serve very well if composed mostly of fine sand. The coarser sands produce leaves of too thin texture and lacking in elasticity. Such land should be used for growing the light pipe tobaccos, such as the Connecticut.

The open, slightly clayey, soils should be used for growing the General Grant variety. This tobacco should be harvested when fairly ripe, after having yellowed a little on the field. This can only be done on well-drained land.

On somewhat stronger land, the growing of tobacco for binders should be specialized in and choice of variety may be made among the Belgian, Aurora and Zimmer Spanish. A growing demand for Canadian binder tobacco is evident among cigar manufacturers.

SEED BEDS.—The soil for these should be set aside the year before using and should be disinfected, either by formalin or steam.

Spring work should begin as early as possible, for upon preparation of the land depends, in large measure, the success of the crop. Good ploughing makes the later cultivation easier and more effective and enables the storage of more moisture in the soil.

Under present conditions, more dependence should be placed upon farm manures than upon commercial fertilizers. The manure should be ploughed in as soon as possible and thoroughly worked into the soil by ploughing and discing.

With good, well-glazed frames, it is not necessary to sow the seed, even when sown dry, before April 20. This will give plants fit for transplanting from June 1 to 15 and will permit the plantation to become established under favourable conditions. Results in 1916 have demonstrated that late plantations, with very few exceptions, give only medium returns at best.

F. CHARLAN,
Dominion Tobacco Husbandman.

SOIL FERTILITY AND FERTILIZERS.

In the effort that every farmer will make during the season of 1917 to increase his crop yields, the question will present itself to many minds, **Will fertilizers pay?** In other words, will there be from their use such an increase in yield as more than to meet the cost of the fertilizer and its application? The answer to this enquiry cannot be given by a direct yes or no, for the effect of a fertilizer depends on many factors, some of which may be known or partially known—such as the nature and condition of the soil—others, such as the character of the season, may be quite beyond our ken or control. Every particular case must be separately considered.

First let it be said that very little hope of profit may be expected from their use on a thin, poor, coarse-grained sand or gravel, with little or no clay or silt, deficient in humus and liable to dry out with a few days' drought. Similarly there may be little or no return on stiff, heavy, plastic clays, ill-drained and destitute, or practically so, of organic matter. The reasons for these conclusions are that for the ready extension of the root system (without which there will be a poor development of the plants above ground) a soil, in addition to containing plant food, must be capable of holding moisture; it must be warm and well aerated. **Without mellowness a crop cannot do its best, it cannot utilize to advantage the available plant food presented in fertilizers.** To create this mellowness, commonly known as good tilth, there are several factors; humus-forming matter as from farm manure, crop residues (as the roots of clover), green crops turned under, and composted muck; drainage, to give free passage to water and air through the soil; proper working of the soil, and, in some cases, the application of lime or ground limestone.

It will be seen therefore that any attempt to keep up fertility or productiveness simply and exclusively by the use of fertilizers is almost inevitably doomed to failure. But with soils in fairly good heart and as supplemental to manure and a good rotation which assists in replenishing the soil's organic matter, fertilizers may and often do give a profitable return, and more especially is this the case when the fertilizer is applied to a "money crop", such as potatoes, tobacco or sugar beets for the factory.

By the use of fertilizers we seek to increase the more or less available store in the soil of one or more of "the three essential elements of fertility", nitrogen, phosphoric acid and potash. Hence in purchasing fertilizers, and especially ready-made, compounded fertilizers, it is all-important to note the guaranteed percentages of these elements and to purchase on that basis. The particular name or brand under which the fertilizer may be sold matters little. **Assistance, if desired, will be readily given by the Division of Chemistry** in making a comparison as to relative value of two or more fertilizers, provided a copy of the guaranteed analysis is forwarded.

But we strongly advocate the purchasing of fertilizer ingredients rather than the compounded brands. It is cheaper and it is a plan that permits the farmer to adapt the proportions of the several elements to the requirements of his several crops.

In the larger number of our experiments, an application of all three elements has given more profitable returns than when only one or two of them has been employed, but there are occasions when nitrogen only or phosphoric acid only may be used advantageously—depending on the special requirements of the crop and the nature and condition of the soil. Examples of this may be cited in the value of superphosphate for turnips, nitrate of soda for the several cereal crops and leafy vegetables such as cabbage, basic slag for pastures.

Speaking generally, fertilizers are best applied to the prepared land in the spring before seeding, drilling in by means of a fertilizer attachment or by broadcasting and harrowing in. For future guidance in the use of fertilizers for the crop in question, an adjoining strip of land should be left untreated and the crop upon it carefully compared throughout the season with that upon the fertilized area.

War conditions for the time being have removed potash compounds from the fertilizer market and further have very considerably increased the prices of nitrogenous and phosphatic fertilizers. It will be evident, therefore, that the applications advised under normal conditions may require very considerable modification. Space here will not permit any detailed discussion of the many and difficult problems that will present themselves, but if those farmers who purpose using fertilizers during the coming season and who desire help in arriving

at what it may be best to do will submit particulars as to the crop to be sown or planted, the character of the land, its drainage and its recent history with regards to manuring and cropping, **the Division of Chemistry will be pleased to advise as to the applications most likely to prove profitable.**

FRANK T. SHUTT,

Dominion Chemist. (Assistant Director).

DIVISION OF BOTANY.

Remember the rust epidemic of last year. Be prepared for it.

It is hoped farmers who were in a position to secure seed grain from rust-free localities did secure their supply in good time, as was impressed upon them in the last issue of these Hints. Those who were unable to do so may find themselves in a predicament and are urgently advised to use the plumpest of grains they are able to secure from their own grain by using much wind in the fanning mill. If the best 10% of the best and heaviest grain thus obtained is used, the chances for a good crop are promising.

Be careful about frosted and rusted grain. They look much alike, but the former may not germinate satisfactorily and though the best seeds only are used, the stand will be poor. Therefore, test the germination before sowing. If low, and other seed is not procurable, use more seed to the acre.

Do not under any circumstances omit **treatment of seed grain for smut.** Smut treatment with formalin has reduced smut from 80% infection to 1% in recent experiments. Everybody can do this. Note: Bluestone has greatly increased in price. Use Formalin instead; it is just as simple to use and gives very good results. Use 1 lb. Formalin from a reliable firm to 40 Imperial gallons of water. Mix well before use. Sprinkle about 40 to 50 bushels of grain with this quantity, mix thoroughly. Heap grain on clean floor, cover heap with bags to retain fumes for three hours—spread out and sow when sufficiently dry. Formalin-treated grain is not injurious to stock once it has thoroughly dried (Consult Bulletin 73 or Exhibition Circular 24.)

Sow early.—Early sown grain matures sooner and thus escapes rust, when rust is severe. The chances are there will be little rust in 1917, but be prepared for it at any rate by using the plumpest grain, by sowing early, by using early varieties, and by having the ground well prepared. If you were able to fall plough, you are so much ahead!

Seeds must germinate high and must be pure. Have your seeds tested in time to know. The Seed Branch, Department of Agriculture, will do this for you without cost.

POTATOES.—Good seed potatoes are scarce this spring. Plant only sound seed whatever you do. Consult, before planting potatoes, circular No. 9, "The Control of Potato Diseases."

WEEDS.—There are two important points to bear in mind in connection with weeds:—

- 1. Most weeds gain an entrance to the farm in the first instance in the form of impurities in the seeds sown.** Consequently, farmers cannot be too careful in the selection of their seeds. They should obtain a report from the Seed Branch on the sample of seeds before sowing and should be guided accordingly. **THE IDEAL SEED SHOULD BE TRUE TO NAME AND SHOULD CONTAIN NO OTHER SPECIES OF SEED WHATSOEVER.** This a condition of affairs which is very rarely realised. If each farmer would handpick only one pound

of seed and sow a small plot of ground that is clean to begin with, and kept clean throughout the growing season, a beginning would be made in the production of clean seed. The produce of this plot would sow a much larger area the following year.

2. Weeds already on the farm may be distributed over a wider area by careless cultivation. In the case of such weeds as Couch Grass (Quack Grass), Field Bindweed, Creeping Sowthistle, a disc or any implement which cuts the underground parts into small pieces should not be used. These small pieces will grow again and are very difficult to collect and may be scattered all over the field. The implements used on such land should be such as will loosen the soil sufficiently to enable the underground parts to be dragged to the surface when they may be raked together, dried and burned.

Land that is badly infested with such weeds should either be summer-fallowed or planted with some hoed crop in rows sufficiently far apart to admit of frequent cultivation between the rows in summer.

Bulletin S-8, "Weeds and Weed Seeds," and Exhibition Circular 45 "Do You know your Weeds," can be obtained from the Publications Branch, Department of Agriculture, Ottawa.

H. T. GÜSSOW,
Dominion Botanist.

YOUR CORRECT ADDRESS.

If you receive more than one copy of this pamphlet, please cut out the address on each wrapper and mail to us. State which is your **correct** address. No postage is necessary, from points in Canada, on communications addressed to the Central Experimental Farm, Ottawa.

**We will forward application forms to any persons wishing
to have their names entered on our mailing list.**

AGRICULTURAL PAPERS.

Our farmers should be among the "livest" business men in the Dominion, and to gain and keep this position, they must be in touch with the latest methods and developments in Agriculture. An insight into "what the other fellow is doing", is invaluable, not only as a possible source of greater profit, but as a stimulus to more intelligent effort and friendly feeling. It helps our farmers to "get acquainted". We list below the principal agricultural papers of Canada. Every farmer should subscribe to at least one, and better, two or more of these. Their cost is small, indeed insignificant in comparison with the benefit to be expected from their regular visits to our farm homes.

LIST OF CANADIAN AGRICULTURAL PAPERS.

W=Weekly. S-M=Semi-Monthly. Bi-W=Bi-Weekly. M=Monthly.

Paper.	Published at.	Subscription. per annum.	When published.
<i>Prince Edward Island—</i>			
Island Farmer.....	Summerside, P.E.I.	\$1 00	W.
P.E.I. Agriculturist.....	"	\$1 00	W.
<i>Nova Scotia—</i>			
Eastern Farm and Home.....	Amherst, N.S.	\$1 00	S-M.
Homestead.....	Halifax, N.S.	\$0 50	W.
Maritime Apple.....	Kentville, N.S.	\$1 00	Bi-W.
Nova Scotian.....	Halifax, N.S.	\$0 50	W.
<i>New Brunswick—</i>			
Maritime Farmer.....	Sussex, N.S.	\$0 80	S-M.
Maritime Poultryman.....	"		M.
<i>Quebec—</i>			
Family Herald and Weekly Star.....	Montreal, Que.	\$1 00	W.
Journal of Agriculture.....	"	\$1 00	M.
Journal d'Agriculture.....	"	\$1 00	M.
La Patrie.....	"	\$1 00	W.
La Presse.....	"	\$1 00	W.
<i>Ontario—</i>			
Canadian Countryman.....	Toronto, Ont.	\$1 00	W.
Canadian Farm.....	"	\$1 00	W.
Canadian Florist.....	Peterboro, Ont.	\$1 00	Bi-W.
Canadian Horticulturist.....	"	\$0 60	M.
Canadian Poultry News.....	Grimsby, Ont.	\$0 50	M.
Canadian Poultry Review.....	Toronto, Ont.	\$0 50	M.
Farm and Dairy.....	Peterboro, Ont.	\$1 00	W.
Farmer's Advocate.....	London, Ont.	\$1 00	W.
Farmer's Magazine.....	Toronto, Ont.	\$2 00	M.
Fruit Grower and Farmer.....	Grimsby, Ont.	\$1 00	S-M.
Ottawa Valley Journal.....	Ottawa, Ont.	\$1 00	S-W.
Poultry Advocate.....	Toronto, Ont.	\$0 50	M.
Sun.....	"	\$1 00	W.
Thresherman's Review and Power Farming.....	"	\$0 50	M.
<i>Manitoba—</i>			
Canadian Farm Implements.....	Winnipeg, Man.	\$1 00	M.
Canadian Thresherman.....	"	\$1 00	M.
Free Press & Prairie Farmer.....	"		
Country Life in Canada.....	"	\$1 00	M.
Farmer's Advocate.....	"	\$1 50	W.
Grain Growers' Guide.....	"	\$1 00	W.
Nor-West Farmer.....	"	\$1 00	S-M.
<i>Saskatchewan—</i>			
Prairie Farm and Home.....	Regina, Sask.	\$0 50	W.
Sask. Farmer.....	Moose Jaw, Sask.	\$1 00	M.
Saturday Press and Prairie Farm.....	Saskatoon, Sask.	\$2 00	W.
<i>Alberta—</i>			
Farm and Ranch Review.....	Calgary, Alta.	\$1 00	S-M.
<i>British Columbia—</i>			
B.C. Fruit and Farm Magazine.....	Vancouver, B.C.	\$1 50	M.
Successful Poultryman.....	Central Park, B.C.	\$0 50	M.